

REMARKS

Claims 1-35 are pending in the present application. Claims 5, 18 and 29 were canceled, and Claims 1, 10, 11, 12, 13, 14, 23, 24, 25, 34 and 35 were amended. Reconsideration of the claims is respectfully requested.

I. Claim Objections

The Examiner has objected to Claims 10, 12, 13, 23 and 34 for certain informalities. These objections are respectfully traversed.

By this response, Claims 10, 12, 13, 23 and 34 have been amended to overcome these objections. Therefore, these objections should be withdrawn.

II. 35 U.S.C. § 112, First Paragraph

The Examiner has rejected dependent Claims 5, 18 and 29, under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention. This rejection is respectfully traversed.

By this response, dependent Claims 5, 18 and 29 have been canceled without prejudice or disclaimer. Therefore, the rejection of these claims, under 35 U.S.C. § 112, first paragraph, should be withdrawn.

III. 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected Claims 10, 11, 13, 23, 24, 34 and 35, under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. This rejection is respectfully traversed.

By this response, Claims 10, 11, 13, 23, 24, 34 and 35 have been amended to recite "at least one slot" and "said at least one slot" to better define the invention. Therefore the rejection of Claims 10, 11, 13, 23, 24, 34 and 35, under 35 U.S.C. § 112, second paragraph, has been overcome.

IV. 35 U.S.C. § 102, Anticipation

The Examiner has rejected Claims 1, 3-5, 9, 12, 14, 16-18, 22, 25, 27-29 and 33, under 35 U.S.C. § 102(c), as being anticipated by U.S. Patent No. 6,574,755 B1 to Seon ("Seon"). This rejection is respectfully traversed.

As to Claims 1, 14 and 25, the Office Action states:

Referring to claims 1, 14, and 25, Seon discloses responsive to detecting a recovery attempt from an error for an operation involving a hardware component, storing an indication of the attempt (From the abstract, "If the fault occurs on the SCSI bus while the SCSI command is transferred to the target device, the initiator device retries the transfer of the SCSI command to the target device a predetermined number of times."); and responsive to the error exceeding a threshold, placing the hardware component in an unavailable state (From figure 3, element 305.).

Office Action dated November 14, 2003, pages 4 and 5.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983).

In this particular case, each and every feature of the presently claimed invention is not shown within *Seon* arranged as in the rejected claims. Claim 1 reads as follows:

1. A method in a data processing system for isolating failing hardware in the data processing system, the method comprising:
 - responsive to detecting a recovery attempt from an error for an operation involving a hardware component, storing an indication of the attempt; and
 - responsive to the error exceeding a threshold, placing the hardware component in a permanently unavailable state.

Claim 14 reads as follows:

14. A data processing system for isolating failing hardware in the data processing system, the data processing system comprising:
storing means, responsive to detecting a recovery attempt from an error, for storing an indication of the attempt; and
placing means, responsive to the error occurring in the more than a threshold for a hardware component, for placing the hardware component in a permanently unavailable state.

Claim 25 reads as follows:

25. A computer program product in a computer readable medium for isolating failing hardware in a data processing system, the computer program product comprising:
first instructions, responsive to detecting a recovery attempt from an error, for storing an indication of the attempt; and
second instructions, responsive to the error occurring in the more than a threshold for a hardware component, for placing the hardware component in a permanently unavailable state.

Specifically, *Seon* does not show or disclose responsive to an error exceeding a threshold, placing a hardware component in a permanently unavailable state, as in Claim 1. Also, *Seon* does not show placing means, responsive to an error occurring in the more than a threshold for a hardware component, for placing the hardware component in a permanently unavailable state, as in Claim 14. Furthermore, *Seon* does not disclose instructions for a computer program product which, responsive to an error occurring in the more than a threshold for a hardware component, for placing the hardware component in a permanently unavailable state, as in Claim 25.

In the cited text of *Seon*, the Examiner points to the following sections of *Seon* as teaching these particular features:

If the fault occurs on the SCSI bus while the SCSI command is transferred to the target device, the initiator device retries the transfer of the SCSI command to the target device a predetermined number of times.

Thus, if the fault occurs on the SCSI bus successively ten times or more, the first CPU 11 resets the SCSI bus 51 and initializes a SCSI register 14 in the SCSI card 13 at step 305. Also at step 305, the first CPU 11 waits until the RAID controller 30 warms up and then retries transferring the SCSI command to the target device.

Seon, Abstract; Fig. 3, element 305 (col. 5, lines 27-33). The Examiner characterizes the text of the above-quoted second paragraph of *Seon* as disclosing: "and responsive to the error exceeding a threshold, placing the hardware component in an unavailable state."

As can be seen, these sections of *Seon* cited by the Examiner teach only that if a fault occurs on a SCSI bus while a SCSI command is being transferred on the bus, the transfer of the command is retried a predetermined number of times. If the fault occurs on the SCSI bus successively ten times or more, a CPU resets the SCSI bus, waits until a RAID controller warms up, and then retries transferring the SCSI command. In these sections, it is clear that *Seon* provides no teaching to, responsive to an error exceeding a threshold, place a hardware component in a **permanently unavailable** state, as in Claims 1, 14 and 25.

Seon discloses the types of faults that occur on a SCSI bus:

(1) The first fault type is a SCSI bus busy state where the SCSI bus is timed out because an MPU cannot be synchronized with an acknowledge signal due to instability of a request signal to a target device. The SCSI busy state can be recognized when there is no response for 10 seconds after an operation associated with a specific SCSI command is normally completed with no abnormal error by the MPU.

(2) The second fault type is an unexpected disconnect state of the target device where the SCSI target device acts to release the SCSI bus control to enhance performance of the MPU.

(3) The third fault type is a device not ready state where access is attempted when the target device is not ready.

(4) The fourth fault type is a unit attention state where access is attempted just after the target device is reset.

Seon, col. 4, lines 38-54. These fault types that occur on a SCSI bus, as disclosed in *Seon*, are of a temporary nature. For example, a bus "busy state" fault is corrected by re-

sending the request signal to the target device. Also, an "unexpected disconnect state" fault is corrected when the target device again retains control of the SCSI bus. Similarly, a "device not ready state" fault is corrected when the target device becomes ready, and a "unit attention state" fault is corrected when access is retried after a short wait. In other words, *Seon* discloses temporary faults where there is no incentive to place the devices in a permanently unavailable state, as in Claims 1, 14 and 25.

Notably, *Seon* teaches the resetting of devices after the occurrence of faults, and re-trying to transfer SCSI commands to the target devices. Clearly, such devices are not being placed in a permanently unavailable state. The lack of this "permanently unavailable state" feature in *Seon* is further evidenced by the following sections of *Seon*:

Upon determining at step 306 that the SCSI bus 51 has been reset successively three times, the first CPU 11 performs an error logging operation for future error analysis and resets the first MPU 10 at step 307.

Thus, if the fault occurs on the SCSI bus successively ten times or more, the first CPU 11 resets the SCSI bus 51 and initializes a SCSI register 14 in the SCSI card 13 at step 305. Also at step 305, the first CPU 11 waits until the RAID controller 30 warms up and then retries transferring the SCSI command to the target device. Preferably, when ten seconds have elapsed after the SCSI bus 51 is reset, a timer interrupt service routine (ISR) resumes a driver of the SCSI card 13 (namely, the above step 306).

Namely, the first CPU 11 determines at step 313 whether the fault results from phase mismatch. If the fault is determined to result from the phase mismatch at step 313, the first CPU 11 recognizes that the fault is not a SCSI bus fault and thus returns to the above step 304 directly without aborting the SCSI bus 51.

Alternatively, if it is determined at step 313 that the fault does not result from the phase mismatch, the first CPU 11 causes the SCSI bus 51 to abort the retry of the SCSI command transfer, and then waits for the interrupt at step 314. Upon receiving the interrupt, the first CPU 11 returns to the above step 304 directly without aborting the SCSI bus 51.

[W]hen a fault occurs on a SCSI bus while a SCSI command is executed, the SCSI command is reconnected to the SCSI bus and the transfer thereof is retried until the

execution of the SCSI command is normally completed.
[Underlined emphasis added.]

Seon, col. 5, lines 13-16, 27-36, 50-62; col. 7, lines 19-23. Again, as can be seen from the above-described sections, *Seon* does not show, teach or suggest placing the devices in a permanently unavailable state. Therefore, each and every feature of the presently claimed invention in Claims 1, 14 and 25 is not shown in *Seon*.

Independent Claim 12 contains features similar to those of Claims 1, 14 and 25 and is patentable over *Seon* for the same reasons. Claim 12 reads as follows:

12. A data processing system comprising:
 - a bus system;
 - a communications unit connected to the bus system;
 - a memory connected to the bus system, wherein the memory includes a set of instructions; and
 - a processing unit connected to the bus system, wherein the processing unit executes the set of instructions to store an indication of a recovery attempt from an error in response to detecting the recovery attempt; and place the hardware component in a permanently unavailable state in response to the error exceeding a threshold.

Specifically, *Seon* does not show, teach or suggest placing a hardware component in a permanently unavailable state, as recited in Claim 12. Also, the dependent claims depending from these independent claims are patentable for the same reasons. Additionally, these claims include other combinations of features not taught by *Seon*. Consequently, it is respectfully urged that the rejection of Claims 1, 3-5, 9, 12, 14, 16-18, 22, 25, 27-29 and 33 have been overcome.

Therefore, the rejection of Claims 1, 3-5, 9, 12, 14, 16-18, 22, 25, 27-29 and 33, under 35 U.S.C. § 102(e), has been overcome.

Furthermore, *Seon* does not teach, suggest, or give any incentive to make the needed changes to reach the presently claimed invention. *Seon* actually teaches away from the presently claimed invention because it teaches resetting devices after the occurrence of faults, and re-trying to transfer commands to the target devices until the transfers are complete, as opposed to placing the devices in a permanently unavailable state responsive to an error exceeding a threshold, as in the presently claimed invention. Absent the Examiner pointing out some teaching or incentive to implement *Seon* and to

place the devices in a permanently unavailable state responsive to an error exceeding a threshold, one of ordinary skill in the art would not be led to modify *Seon* to reach the present invention when it is examined as a whole. Absent some teaching, suggestion, or incentive to modify *Seon* in this manner, the presently claimed invention can be reached only through an improper use of hindsight using the Applicants' disclosure as a template to make the necessary changes to reach the claimed invention.

V. 35 U.S.C. § 103, Obviousness

The Examiner has rejected dependent Claims 2, 15 and 26, under 35 U.S.C. § 103(a), as being unpatentable over *Seon* as applied to Claims 1, 14 and 25, and further in view of U.S. Patent No. 6,591,324 to Chen et al. ("*Chen*"). Also, the Examiner has rejected dependent Claims 3, 6, 7, 16, 19, 20, 27, 30 and 31, under 35 U.S.C. § 103(a), as being unpatentable over *Seon* as applied to Claims 1, 14 and 25. Additionally, the Examiner has rejected dependent Claims 8, 21 and 32, under 35 U.S.C. § 103(a), as being unpatentable over *Seon* as applied to Claims 1, 14 and 25, and further in view of U.S. Patent No. 6,243,833 to Hitchcock et al. ("*Hitchcock*"). These rejections are respectfully traversed.

As discussed above with respect to the Applicants' response to the rejection of Independent Claims 1, 14 and 25, these dependent Claims 2, 3, 6, 7, 8, 15, 16, 19, 20, 21, 26, 27, 30, 31 and 32 depending from these independent Claims 1, 14 and 25 are patentable for the same reasons. Therefore, the rejections of dependent Claims 2, 3, 6, 7, 8, 15, 16, 19, 20, 21, 26, 27, 30, 31 and 32, under 35 U.S.C. § 103(a), have been overcome.

VI. Allowable Subject Matter

The Examiner has stated that Claims 10, 11, 13, 23, 24, 34 and 35 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. § 112, second paragraph, as set forth by the Examiner. In response, these claims have been amended to overcome the rejections under 35 U.S.C. § 112, second paragraph. Therefore, Claims 10, 11, 13, 23, 24, 34 and 35 should be allowed.

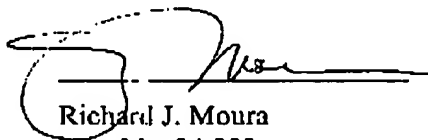
VII. Conclusion

It is respectfully urged that the subject application is patentable over *Seon, Chen* and *Hitchcock* and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



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